

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-4, 6-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funato et al (20060025161) in view of Claude Castelluccia (An Adaptive Per-Host IP Paging Architecture) and Ayoub et al (6859653).

Regarding claim 1 Funato teaches a controller apparatus configured to implement paging control in which, when the controller apparatus receives a packet addressed to a mobile terminal (MH 902, fig. 9), the controller apparatus transmits a paging notification packet to a paging area of the mobile terminal, so as to obtain location information on the mobile terminal (MH 902, fig. 9) and to determine a forwarding destination of the packet, the controller apparatus comprising (abstract):

a paging area forming unit (920, fig. 9) having a plurality of algorithm (The communication network 100 is configured to provide paging for mobile hosts MHs in the network and for example paging areas reconfigure themselves according to changes in

Art Unit: 2617

movement traffic of MHs, dynamic configuration of paging areas and automatically/dynamic configured) for forming the paging area, para. 0075-0076);

wherein the paging area forming unit (920, fig. 9) is configured to form the paging area of the mobile terminal (MH 902, fig. 9) by an algorithm (see detail in fig. 11-12) of the plurality of algorithm which is associated and application started by the mobile station and is specified by the mobile terminal (fig. 20, elements 908 {2004 and 2006} applications started by the mobile host to an access point, Identifier of current paging area of access point (106,108,110-116) of telecommunication network (100) is received at a mobile host (MH) (120,122), subsequently, and the location information from the mobile host is transmitted to the access point. On detection of a location change of the MH, the old location information is transmitted to a new access point of the telecommunication system, para. # 0050-0051, 0064-0065, 0086, 0145). Funato does not specifically teach algorithm being associated with an application started by the mobile terminal.

In the same field of endeavor, Claude Castelluccia discloses algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal (Section 4.1-4.3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato by specifically adding feature algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal in order to enhance

Art Unit: 2617

system performance to reduces cost of wireless systems and increases their performance as taught by Claude Castelluccia. Funato and Castelluccia do not specifically disclose that include at least an e-mail application.

In the same field of endeavor, Ayoub et al discloses that include at least an e-mail application (col. 9, lines 16-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato and Castelluccia by specifically adding feature include at least an e-mail application in order to enhance system performance to provides efficient paging location management strategy for a mobile system within which several different services can be utilized. Achieves signaling gain as the paging location management strategies are adapted to the service and to the user as taught by Ayoub et al.

Regarding claim 2 Funato teaches wherein the paging area forming unit is configured to form the paging area of the mobile terminal, in accordance with a load condition or traffic distribution of the controller apparatus (para. # 0083-0085, also see claim 1).

Regarding claims 3, 10 Funato teaches a mobile terminal configured to implement paging control in which, when a controller apparatus receives a packet addressed to the mobile terminal, the controller apparatus transmits a paging notification packet to a paging area of the mobile terminal, so as to obtain location information on the mobile terminal and to determine a forwarding destination of the packet, the mobile terminal comprising (fig. 1-9 and 20, abstract):

an algorithm specifying unit configured to specify, to the controller apparatus (920, fig. 9), an algorithm for forming the paging area of the mobile terminal (mobile host MH), the algorithm being associated with an application started by the mobile terminal (para. # 0064, 0086, 0075-0077, 0111-0114, fig. 9-12); and

a paging control unit (908, fig. 20) configured to perform the paging control based on information on the paging area formed by the controller apparatus based on the algorithm (when the received paging area identification information does not match the stored paging area identification information, transmitting the Paging ID, PCA NAI and the location information to a new access point. Dynamic paging area configuration algorithm, PCA 920 operates to receive movement reports from mobility reporter agents of mobile hosts in communication with last hop router 904, 906. A PCA is notified by a dormant monitoring agent (DMA) of a packet arrival to a mobile host and sends paging clustering messages to the local paging agent (LPA) clusters. Once the PCA 920 receives positive or negative results from LPA clusters, the PCA notifies the DMA para. # 0075-0076, 0086-0090, 0111-0114, fig. 9-12). Funato does not specifically teach algorithm being associated with an application started by the mobile terminal.

In the same field of endeavor, Claude Castelluccia discloses algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal (Section 4.1-4.3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato by specifically adding feature algorithm which is associated with an application

Art Unit: 2617

according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal in order to enhance system performance to reduces cost of wireless systems and increases their performance as taught by Claude Castelluccia. Funato and Castelluccia do not specifically disclose that include at least an e-mail application.

In the same field of endeavor, Ayoub et al discloses that include at least an e-mail application (col. 9, lines 16-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato and Castelluccia by specifically adding feature include at least an e-mail application in order to enhance system performance to provides efficient paging location management strategy for a mobile system within which several different services can be utilized. Achieves signaling gain as the paging location management strategies are adapted to the service and to the user as taught by Ayoub et al.

Regarding claim 4 Funato teaches a processing language specifying unit configured to specify, to the controller apparatus, a processing language in which an algorithm for forming the paging area is written; wherein the algorithm specifying unit is configured to specify the algorithm written in the processing language when a result of determination that the processing language can be handled is received from the controller apparatus (para. # 0051, 0073-0074, 0082, see above).

Regarding claim 6 Funato teaches a processing language specifying unit configured to specify, to the mobile terminal, a processing language in which an algorithm for forming the paging area is written; wherein the algorithm specifying unit is

Art Unit: 2617

configured to specify the algorithm written in the processing language when a result of determination that the processing language can be handled is received from the mobile terminal (para. # 0064, 0083-0086, 0145, fig. 9 and 20).

Regarding claim 7 Funato teaches a mobile terminal configured to implement paging control in which, when a controller apparatus receives a packet addressed to a mobile terminal, the controller apparatus transmits a paging notification packet to a paging area of the mobile terminal, so as to obtain location information on the mobile terminal and to determine a forwarding destination of the packet, the mobile terminal comprising:

a paging area forming unit associating and storing an identification information of an application and an identification information of an algorithm for forming the paging area (para. # 0064, 0086, 0145, fig. 9 and 20);

wherein the paging area forming unit is configured to form the paging area of the mobile terminal by an algorithm specified by the controller apparatus which corresponds to the identification information of the algorithm associated with the identification information of the application started by the mobile terminal (dynamic paging area configuration algorithm, PCA 920 operates to receive movement reports from mobility reporter agents of mobile hosts in communication with last hop router 904, 906. A PCA is notified by a dormant monitoring agent (DMA) of a packet arrival to a mobile host and sends paging clustering messages to the local paging agent (LPA) clusters. Once the PCA 920 receives positive or negative results from LPA clusters, the PCA notifies the DMA para.

Art Unit: 2617

# 0064-0070, 0086-0090, 0111-0114, fig. 9-12 and 20). Funato does not specifically teach algorithm being associated with an application started by the mobile terminal.

In the same field of endeavor, Claude Castelluccia discloses algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal (Section 4.1-4.3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato by specifically adding feature algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal in order to enhance system performance to reduces cost of wireless systems and increases their performance as taught by Claude Castelluccia. Funato and Castelluccia do not specifically disclose that include at least an e-mail application.

In the same field of endeavor, Ayoub et al discloses that include at least an e-mail application (col. 9, lines 16-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato and Castelluccia by specifically adding feature include at least an e-mail application in order to enhance system performance to provides efficient paging location management strategy for a mobile system within which several different services can be utilized. Achieves signaling gain as the paging location management strategies are adapted to the service and to the user as taught by Ayoub et al.

Regarding claim 8 Funato teaches wherein the paging area forming unit is configured to form the paging area of the mobile terminal, in accordance with a communicating use or movement characteristics of the mobile terminal (para. # 0064, 0083-0086, 0145).

Regarding claim 9 Funato teaches a mobile terminal configured to implement paging control in which, when a controller apparatus receives a packet addressed to a mobile terminal, the controller apparatus transmits a paging notification packet to a paging area of the mobile terminal, so as to obtain location information on the mobile terminal and to determine a forwarding destination of the packet, the mobile terminal comprising:

a paging area forming unit associating and storing an identification information of an application and an identification information of an algorithm for forming the paging area; and a transmitting unit configured to transmit, to the controller apparatus, information on the paging area formed by the paging area forming unit (para. # 0064-0069, 0083-0086, 0145, fig. 9 and 20);

wherein the paging area forming unit forms a paging area of the mobile terminal based on an algorithm corresponding to the identification information of the algorithm associated with the identification information of the application started by the mobile terminal, and wherein, when information on the paging area different from the information on the paging area formed by the paging area forming unit is received from the controller apparatus, the transmitting unit is configured to transmit, to a different controller apparatus, the information on the paging area formed by the paging area

Art Unit: 2617

forming unit (dynamic paging area configuration algorithm, PCA 920 operates to receive movement reports from mobility reporter agents of mobile hosts in communication with last hop router 904, 906. A PCA is notified by a dormant monitoring agent (DMA) of a packet arrival to a mobile host and sends paging clustering messages to the local paging agent (LPA) clusters. Once the PCA 920 receives positive or negative results from LPA clusters, the PCA notifies the DMA para. # 0064-0070, 0086-0090, 0111-0114), fig. 9-12 and 20). Funato does not specifically teach algorithm being associated with an application started by the mobile terminal.

In the same field of endeavor, Claude Castelluccia discloses algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal (col. 9, lines 16-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Funato by specifically adding feature algorithm which is associated with an application according to a communication use of the mobile terminal, and the application is started by the mobile terminal and is specified by the mobile terminal in order to enhance system performance to reduces cost of wireless systems and increases their performance as taught by Claude Castelluccia. Funato and Castelluccia do not specifically disclose that include at least an e-mail application.

In the same field of endeavor, Ayoub et al discloses that include at least an e-mail application (col. 9, lines 16-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of

Art Unit: 2617

Funato and Castelluccia by specifically adding feature include at least an e-mail application in order to enhance system performance to provides efficient paging location management strategy for a mobile system within which several different services can be utilized. Achieves signaling gain as the paging location management strategies are adapted to the service and to the user as taught by Ayoub et al.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAWAR IQBAL whose telephone number is (571)272-7909. The examiner can normally be reached on 8:30 am to 5:00 pm Monday to Friday.

Art Unit: 2617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KAMRAN AFSHAR can be reached on 571-272-7796. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. I./

Examiner, Art Unit 2617

/KAMRAN AFSHAR/

Supervisory Patent Examiner, Art Unit 2617